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添付公開書類:
— 国際調査報告書

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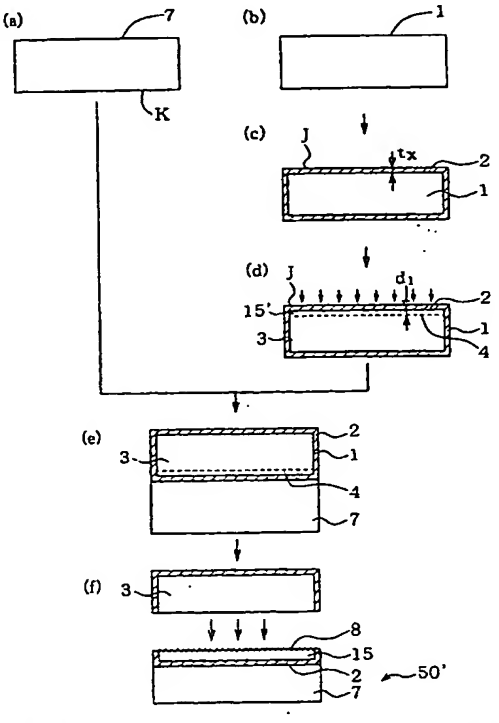
(54) Title: SOI WAFER MANUFACTURING METHOD

(54) 発明の名称: ＳＯＩウェーハの製造方法



(57) Abstract: To control the thickness of a bond silicon single crystal thin film (15) depending on the thickness of an SOI layer (5) to be formed, the depth d1+tx from a first major surface (J) of a separation ion-implantation layer (4) in the separation ion-implantation layer forming step is controlled by the energy of the ion implantation. The dose of the ion implantation is set smaller as the depth from the first major surface (J) of a separation ion-implantation layer (4) is smaller. If the dose is small, the surface roughness of the separation surface is small. Therefore, the polishing allowance of the separation surface of the bond silicon single crystal thin film can be set small in the planarization step. As a result, the thickness uniformness of the thin SOI layer can be enhanced. Consequently, an SOI wafer manufacturing method in which even if the required level of the thickness of the SOI layer is very low, the thickness uniformness of a wafer and the thickness uniformness among wafers are both enhanced to an adequately low level is provided.

(57) 要約: 得るべきＳＯＩ層５の厚さに応じて結合シリコン単結晶薄膜１５の厚さを調整するために、剥離用イオン注入層形成工程における剥離用イオン注入層４の第一主表面Ｊからの形成深さｄ１＋ｔｘを、イオン注入のエネルギーにより調整する。そして、剥離用イオン注入層４の第一主表面Ｊからの形成深さが小さくなるほど、イオン注入のドーズ量を小さく設定する。ドーズ量が小さくなれば、剥離面の面粗さも小さくなり、平坦化工程における結合シリコン単結晶薄膜の剥離面の研磨代を小さく設定することができる。その結果、薄いＳＯＩ層を形成する場合に、該ＳＯＩ層の膜厚均一性を向上させることができる。これにより、ＳＯＩ層の要求膜厚レベルが非常に小さい場合においても、ウェーハ内の膜厚均一性及びウェーハ間の膜厚均一性の双方を十分小さいレベルに軽減できるＳＯＩウェーハの製造方法を提供する。

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP03/09007

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl[7] H01L27/12, H01L21/265

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int.Cl[7] H01L27/12, H01L21/26-21/268, H01L21/322-21/326

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1922-1996 Toroku Jitsuyo Shinan Koho 1994-2003
Kokai Jitsuyo Shinan Koho 1971-2003 Jitsuyo Shinan Toroku Koho 1996-2003

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2002-502122 A (S.O.I. TEC SILICON ON INSULATOR TECHNOLOGIES), 22 January, 2002 (22.01.02), Full text; Figs. 1 to 6 & WO 99/39378 A1 & EP 1058946 A1 & FR 2774510 A1 & KR 2001040572 A & US 6429104 B1	1-5
Y	Written and edited by Haruhide FUSE et al., "Kokomade Kita Ion Chunyu Gijutsu", first edition, Kogyo Chosakai Publishing Co., Ltd., 25 June, 1991 (25.06.91), pages 34 to 35	1-5
Y	JP 11-329996 A (Mitsubishi Materials Corp.), 30 November, 1999 (30.11.99), Full text; Fig. 1 (Family: none)	2-4

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
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"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
03 October, 2003 (03.10.03)	14 October, 2003 (14.10.03)
Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer
Facsimile No.	Telephone No.

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